35 U.S.C. § 112, first paragraph, should be withdrawn and Claims 23-28, 31 and 34-37 should be allowed.

Claim 25 has been amended by adding "number average" before "molecular weight" to indicate that the recited molecular weight of the dicarboxylic acid-functionalized material is a number average molecular weight. Support for "number average molecular weight" is on page 20, lines 4-5, page 30, lines 20-21, page 31, lines 19-22 and elsewhere in the specification. Accordingly, the rejection of Claim 25 under 35 U.S.C. § 112, second paragraph, should be withdrawn and Claims 25 should be allowed.

Claims 23 and 25 have been clarified by amendment above for purposes of form. It is respectfully submitted that the amendments to Claims 23 and 25 are neither narrowing nor made for substantial reasons related to patentablity as defined by the Court of Appeals for the Federal Circuit in Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 95-1066 (Fed. Cir. 2000). Therefore, the amendments to Claims 23 and 25 do not create prosecution history estoppel and, as such, the doctrine of equivalents is available for all of the elements of Claims 23 and 25.

New Claims 43 and 44 have been added to further define that the dihydroxyl-functionalized material has a number average molecular weight of up to about three times greater than the molecular weight of starting dicarboxylic acid-functionalized material.

Support for the dihydroxyl-functionalized material having a molecular weight of up to about three times greater the molecular weight of starting dicarboxylic acid-functionalized material is in Examples 1, 2 and 10 of the present specification and on page 9, lines 13-25, including the chemical formula, taken together with the description on page 12, lines 6-15.

Example 10 states that the molecular weight of HTBN prepared according to Example 1, using CTBN with a molecular weight of 3,800, was found to be 10,400. Example 10 further states that the molecular weight of HTBN prepared according to Example 2, using CTBN with a molecular weight of 3,800, was found to be 11,300. Thus the molecular weight of the HTBN of Example 1 is 2.73 times (i.e., about 2.7 times) the molecular weight of CTBN. Similarly, the molecular weight of the HTBN of Example 2 is 2.97 times (i.e., about 3.0 times) the molecular weight of CTBN.

In addition, dihydroxyl-functionalized materials that have a molecular weight about the same as the molecular weight of the starting dicarboxylic acid-functionalized materials are also contemplated by the present invention.

Support for the dihydroxyl-functionalized material having a molecular weight about the same as the molecular weight of the starting dicarboxylic acid-functionalized materials, i.e., that the dihydroxyl-functionalized material does not have any chain extended components, is on page 9, lines 13-25, including the chemical formula, taken together with the description on page 12, lines 6-15, of the specification.

The chemical formula on page 9 depicts a dicarboxyfunctional material, which does not have any chain extension. The description on page 12, lines 6-15, states:

"hydroxyalkylated versions of the carboxylic acid-functionalized polymer include those where R and R^1 may be selected from COO-X^1-OH or CAA^1-X-COO-X^1-OH, where A, A^1 and X are as defined above and X^1 is as defined by X."

Accordingly, the dihydroxyl-functionalized materials that do not have any chain extension, i.e., those that have molecular weight about the same as the molecular weight of the starting dicarboxylic acid-functionalized materials, are clearly contemplated by the present invention. Therefore, the newly presented Claims 43 and 44 are allowable.

Claims 23-28, 31 and 34-37 have been rejected under 35 U.S.C. § 103 (a) as being obvious over Okamoto in view of alleged admissions by Applicant, Merck Index, Wu and Yoshino, in further view of Wu or Yoshino. Also, Claim 25 has been rejected under 35 U.S.C. § 103 (a) as being obvious over Okamoto in view of alleged admissions by Applicant, Merck Index, Wu and Yoshino, in further view of Wu or Yoshino and further in view of admissions by Applicant.

The central theme of the above rejections appears to be the assumption that due to the toxicity of ethylene oxide, a person of ordinary skill in the art would be motivated to replace ethylene oxide with ethylene carbonate.

There simply is no suggestion in any combination of the previously cited or presently cited references that provide motivation for a person of ordinary skill in the art to replace ethylene oxide with ethylene carbonate and further replace a tertiary amine catalyst with a phase transfer catalyst. The toxicity of a chemical alone is insufficient to provide the requisite motivation, which is missing in the above-cited references, to replace ethylene oxide with ethylene carbonate and further replace the tertiary amine catalyst with a phase transfer catalyst.

In support for the above, submitted herewith is a Declaration under 37 C.F.R. 1.132 in response to the above multi-reference rejections to show that a person of ordinary skill in the art would not be motivated to replace ethylene oxide with ethylene carbonate. More specifically, the Declaration states: Nearly all chemicals used in the chemical industry, including ethylene oxide, are toxic to one degree or another. Despite this, millions of pounds of ethylene oxide are produced and used annually by the chemical industry. Thus, one would not automatically replace ethylene oxide for being hazardous. Ethylene and propylene oxides are so inexpensive that any added safety costs associated with their use would be insufficient to offset the higher cost of ethylene and propylene carbonates and thus, would not provide sufficient motivation to replace ethylene oxide with ethylene carbonate. In addition, the molecular weight of ethylene carbonate is twice the molecular weight of ethylene oxide. In the hydroxyalkylation of a

carboxyfunctional material using ethylene oxide as the hydroxyalkylating agent, 100% of the weight of the ethylene oxide would be added to the carboxyfunctional material, so that all of the hydroxyalkylating agent is retained in the reaction product without any loss of material. In sharp contrast, in the hydroxyalkylation of a carboxyfunctional material using ethylene carbonate as the hydroxyalkylating agent, only 50% of the weight of the ethylene carbonate is added to the carboxyfunctional material. The remaining 50% is lost as CO_2, a by-product that requires disposal. Thus, the 50% weight loss and doubling the raw material cost would quadruple the raw material costs, so that a person of ordinary skill in the art would not have motivation to replace ethylene oxide with ethylene carbonate.

In view of the foregoing, Applicants respectfully request reconsideration of the present application, withdrawal of the 35 U.S.C. §112 objection, 35 U.S.C. §112 and 35 U.S.C. §103 (a) rejections, rejoining of the claims that are currently withdrawn from consideration and allowance of all pending claims, including the newly presented claims.

It is respectfully submitted that all claims are allowable for at least the reasons stated. An early indication of their allowability by issuance of a Notice of Allowability is earnestly solicited.

Respectfully submitted,

Date: November 5, 2001 By: V. Alexanian

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims were amended as follows:

23 (Amended). A process for preparing a dihydroxyl-functionalized material by hydroxyalkylating a dicarboxylic acid-functionalized material, said process comprising the step of: reacting as reactants: (a) a dicarboxylic acid-functionalized material selected from the group consisting of dicarboxylic acid-functionalized polymers of: polybutadiene, poly(butadiene-co-acrylonitrile), poly(acrylonitrile) and combinations thereof; and (b) a hydroxyalkylating reagent selected from the group consisting of: a carbocyclic carbonate and a carbocyclic sulfite; in the presence of: (c) a phase transfer catalyst under conditions sufficient to form a dihydroxyl-functionalized material [having a molecular weight not more than about three times greater than the molecular weight of said dicarboxylic acid-functionalized material].

25. (Amended) The process according to claim 23, wherein said dicarboxylic acid-functionalized material has a number average molecular weight of from about 3,100 to about 4,200.

The following new claims were added:

-- 43. The process according to claim 23, wherein said dihydroxyl-functionalized material has a number average molecular weight of up to about three times greater than the molecular weight of said dicarboxylic acid-functionalized material.

44. The process according to claim 23, wherein said dihydroxyl-functionalized material has a number average molecular weight from about 2.7 to about 3.0 times greater than the molecular weight of said dicarboxylic acid-functionalized material. --

X The Commissioner is hereby authorized to charge $ ____ and any additional fees under 37 C.F.R. §§1.16 and 1.17 which may be required with this communication or during the entire pendency of the application, or credit any overpayment, to **Deposit Account No. 01-0467.** A duplicate copy of this Form is enclosed.

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CERTIFICATE OF MAILING

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING MAILED TO THE UNITED STATES PATENT AND TRADEMARK OFFICE ON **November 5, 2001** VIA FIRST CLASS MAIL ADDRESSED TO: COMMISSIONER FOR PATENTS, WASHINGTON, D.C. 20231.

Vazken A. Alexanian	V. Alexanian	November 5, 2001
NAME	SIGNATURE	DATE